SUPPORT FOR THE AMENDMENTS

Claims 1-12 and 14 are amended to use wording and structure consistent with U.S. patent law practice.

No new matter will be added to this application by entry of this amendment.

Claims 1-14 are active.

REMARKS/ARGUMENTS

The claimed invention is directed to a mixture for the stabilization of plastics to deterioration of mechanical properties and discoloration due to heat and oxidative degradation. Stabilization mixtures which provide thermal and oxidative stability and do not adversely discolor the plastic are sought.

The claimed invention addresses this problem by providing a mixture comprising an amorphous phenolic stabilizer and at least one reducing agent, wherein the mixture has a color value with a Hazen number of less than 100 according to DIN 53409. No such mixture is disclosed or suggested in the cited references.

Applicants wish to thank Examiner Goloby for the courteous and useful discussion of this application with Applicants' U.S. representative on April 1, 2008. At that time Applicants U.S. representative reviewed and contrasted the descriptions of the cited prior art with the claimed invention. The following reiterates and expands upon that discussion.

Applicants have described that such stabilizer mixtures as prepared according to the claimed invention have very low color as indicated by the Hazen number of less than 100. Such low color value is achieved by the process of the claimed invention wherein a reducing agent **is added to the reaction mixture** for the preparation of the amorphous phenolic

stabilizer at the beginning of the preparation reaction. Applicants have described (page 7, lines 8-21) that without reducing agent present during the synthesis of the amorphous phenolic compound, color contamination forms during the synthesis reaction. However, according to the claimed invention, the color value of the stabilizer mixture is significantly reduced by adding reducing agent to the reaction before completing the synthesis of the amorphous phenolic stabilizer.

The rejection of Claims 1-3, 5, 11 and 13 under 35 U.S.C. 103(a) over Schmitter (U.S. 4,960,808) is respectfully traversed.

Schmitter neither discloses nor suggests the mixture of the claimed invention.

Schmitter describes a polyketone composition which is stabilized by the inclusion of a stabilizer selected from phenolic dicarboxylates, phenolic carboxamides and phenolic phosphites. This reference describes that the "stabilizer is added to the polyketone polymer by conventional methods suitable for producing an intimate mixture." Schmitter is silent with respect to an **amorphous** stabilizer and a **stabilizer of low color value**.

The Office has alleged that a mixture of a phenolic dicarboxylate and a phenolic phosphite will inherently have a Hazen number of less than 100. However, as indicated above, Applicants have described that:

> "In phenolic stabilizers, these chromophores can arise even before synthesis of the stabilizer is complete. In particular if no purification of the stabilizer, e.g., distillation or recrystallization, follows the synthesis, or if the structure of the stabilizer prevents its purification, these chromophores formed during the synthesis can markedly reduce quality and thus the usefulness of the stabilizer." (page 1, line 44, bridging to page 2)

Therefore, Applicants respectfully submit that simple mixing of the phenolic stabilizer after synthesis of the stabilizer is complete, with the phenolic phosphite in the plastic as described by Schmitter does not provide a mixture comprising an amorphous phenolic stabilizer of the low color value as provided by the claimed invention.

Moreover, the cited reference is silent with respect to the color value of the stabilizer mixture prior to addition to the plastic and provides no disclosure, suggestion or motivation to one of ordinary skill in the art which would lead to the claimed invention.

In view of the above, Applicants respectfully submit that the cited reference neither anticipates nor renders the claimed invention obvious and withdrawal of the rejection of Claims 1-3, 5, 11 and 13 under 35 U.S.C. 103(a) over Schmitter is respectfully requested.

The rejection of Claims 1, 2, 4 and 12 under 35 U.S.C. 103(a) over Schmitter in view of Collonge et al. (U.S. 4,316,996) is respectfully traversed.

The cited combination of references neither discloses nor suggests the claimed invention as described in Claims 1 and 2.

The deficiency of Schmitter is described above. Collonge is cited to show addition of a reducing agent prior to filtration in the preparation of a phenolic antioxidant and a weight percentage of 2.7 in the mixture.

Collonge describes a process for the preparation of a phenolic antioxidant via Friedel Crafts alkylation wherein a substituted hydroxylamine is added to the water used in neutralization of the catalyst and by adding prior to filtration a substituted oxime and an additional quantity of hydroxylamine. (Col.4, lines 18-23)

Applicants respectfully submit that the amorphous phenolic stabilizer of the claimed invention is prepared by carrying out one selected from the group consisting of esterification, transesterification, transamidation and amidation **in the presence of at least one reducing agent.** The chemistry employed in Collonge is unrelated to the chemistry of the claimed invention. Nowhere does Collonge disclose or suggest a reducing agent be present during the alkylation synthesis. One of ordinary skill in the art is aware that the alkylation would not take place in the presence of water.

Moreover, both references are silent with respect to an **amorphous** phenolic stabilizer. Applicants have described the significance of an amorphous phenolic stabilizer as follows:

> "The advantage of the lower level of intrinsic color in the mixtures of the invention is particularly relevant in the case of amorphous stabilizers for which conventional purification steps, e.g., crystallization, cannot be used for removing chromophores, because these stabilizers of the invention do not crystallize. Nor can the phenolic stabilizers generally be subjected to other purification processes which are usual in other circumstances, e.g., distillation, since the molar masses are very high, and therefore the vapor pressures of these compounds are very low, and the tendency to form the chromophores is increased specifically at the high temperatures needed." (page 2, line 41 bridging to page 3)

In view of the above, Applicants respectfully submit that the Collonge does not cure the deficiencies of Schmitter and therefore the combination of references cannot anticipate or render the claimed invention obvious. Withdrawal of the rejection of Claims 1, 2, 4 and 12 under 35 U.S.C. 103(a) over Schmitter in view of Collonge et al. is respectfully requested.

The rejection of Claims 6-10 and 14 under 35 U.S.C. 103(a) over Schmitter in view of Collonge and Dexter et al. (U.S. 3,644,482) is respectfully traversed.

The cited combination of references neither discloses nor suggests a process for **preparing an amorphous phenolic stabilizer in the presence of at least one reducing agent**.

Schmitter does not disclose or suggest a method of preparation of the phenolic stabilizer. Dexter is cited to show synthesis of a phenolic stabilizer by esterification. Dexter neither discloses nor suggests addition of a reducing agent to the preparative esterification reaction. The Office has cited Collonge with Dexter to show a stabilization agent being added. However, as described above, Collonge does not disclose or suggest adding an agent to the reaction mixture as in the claimed invention. Moreover, Collonge is directed to Friedel Crafts synthesis which is technology different from the esterification of Dexter and as indicated above, the two different chemistries are not compatible.

In view of the foregoing, Applicants respectfully submit that the cited combination of references can neither anticipate nor render obvious the invention as claimed in Claims 6-10 and 14 of the present invention. Therefore, withdrawal of the rejection of Claims 6-10 and 14 under 35 U.S.C. 103(a) over Schmitter in view of Collonge and Dexter et al. is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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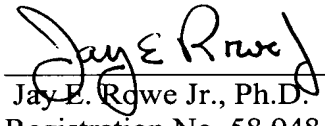

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